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EXAMINER

LAUX, DAVID J

ART UNIT

PAPER NUMBER

3743

MAIL DATE

DELIVERY MODE

06/25/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/596,690	Applicant(s) SIMON, YEHUDA YURI	
	Examiner David J. Laux	Art Unit 3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is in response to applicant's submission dated 04/09/2009. Claim(s) 27-50 is/are pending.

Response to Arguments

1. Applicant's arguments with respect to claims 27-50 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 27-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In claim 27, applicant generally claims a connection to said production line. Since the apparatus is for treating chemical waste, which is potentially corrosive and/or noxious, applicant has not disclosed whether a traditional copper or PVC pipe could be used or whether the connection device would have to be corrosion resistant or made of a special type of material or if the chemical is pressurized in order to convey it through the connection or a means for pressurizing the chemical if necessary. Appropriate action is necessary.

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4. Claim 37 is separately rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant fails to adequately describe the claimed "radiation cooler." As best understood, the radiation cooler appears to be a length of pipe that is capable of absorbing at least some energy from the gas stream and will be assumed to be such for purposes of examination under 35 U.S.C. §§ 102 & 103. Appropriate action is required.

5. Claim 50 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Applicant has failed to adequately describe "using principles of kinetic equilibrium."

Appropriate action is required.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 27-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. See above discussion as to why the connection of claim 27 is indefinite. Appropriate action is required.

8. Claim 37 is separately rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter

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which applicant regards as the invention. See above discussion as to why the radiation cooler of claim 37 is indefinite. Appropriate action is required.

9. Claim 50 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. See above discussion as to why "using principles of kinetic equilibrium" is indefinite. Appropriate action is required.

Claim Rejections - 35 USC § 101

10. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

11. Claim 50 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Applicant appears to claim an abstract thought process using product gas compositions to design a post-pyrolysis subsystem. Abstract ideas are not patentable under § 101. Appropriate action is required.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 27-29 & 32-38 & 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,971,323 to Capote et al in view of US 3,611,954 to Monroe Jr., and further in view of US 6,938,562 to Pope.

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14. '323 discloses a system for neutralizing fluid chemical waste products that result from a chemical production process and are collected from the production line, said system comprising: a pyrolysis/reaction chamber (20) having a wall (28) and three or more openings (openings for the feed tube (17), outlet (105), and at least two openings for plasma torches (36)) in said wall (28) through which one or more plasma torches (36) are inserted (Fig. 2), through which one or more inlet conduits (17) pass (Fig. 2), and to which an exit conduit (105) is connected (Fig. 2); a pre-pyrolysis subsystem (10) comprising a connection to said production line (it is inherent that since the waste is being treated in the apparatus, there must be some connection that allows the waste to move between the production source and the treatment apparatus), a valve (18) to regulate the flow rate (Col. 4, lines 44-53), and a pump (16), which pumps said waste from said production line through said inlet conduits (17) (Col. 4, lines 24-27); a post-pyrolysis subsystem (40 & 26; Col. 12, lines 11-19); sensors (52, 76, 77, 19) that provide information concerning various operating parameters at different locations in said system (Col. 14, lines 3-16, 28-35); and a control unit (50) that utilizes information provided by said sensors (52, 76, 77, 19) as well as other information provided to it from other sources in order to optimize and automate the operation of said system (Col. 14, lines 44-47).

15. '323 fails to disclose an atomizer being attached at the end pointing into said chamber of each of said inlet conduits through which said pump pumps said waste, thereby atomizing said fluid waste and creating a jet of small droplets; each of said atomizers being located opposite the at least one plasma stream/s created by said

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plasma torch/es, thereby spraying said jet of small droplets directly into said plasma stream/s causing the molecules of which said droplets are comprised to be instantaneously disassociated into their constituent atoms or ions, which then recombine to form the gas phase of different types of stable molecules inside said pyrolysis/reaction chamber. '954 teaches an atomizer (17) being attached at the end pointing into said chamber (11) of each inlet conduit (19) (Col. 2, lines 21-23); each of said atomizers (17) being located opposite the flame cone (13) created by the burner (10). It would have been obvious for one skilled in the art at the time of invention to combine the chemical treatment apparatus of '323 with the atomization nozzle orientation of '954 because such a combination would have produced the added benefit of a more efficient treatment process which ensures that the waste chemical will be subjected to the high temperature flame. '323 as combined with '954 would be capable of spraying a jet of droplets directly into a plasma stream causing the molecules of which said droplets are comprised to be instantaneously disassociated into their constituent atoms or ions which then recombine to form the gas phase of different types of stable molecules inside said pyrolysis/reaction chamber.

16. '323 fails to disclose a display system to provide the operator of said system with information concerning the operation and operating parameters of said system. '562 teaches a display system to provide the operator of said system with information concerning the operation and operating parameters of said system (Col. 10, lines 49-51). It would have been obvious for one skilled in the art at the time of invention to combine the waste treatment apparatus of '323 with the display device of '562 because

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such a combination would have produced the added benefit of a way for the operator of the treatment apparatus to monitor the conditions within the reactor to ensure the device is functioning within its specifications.

17. With regard to claim 28, the apparatus of '323 as combined with '954 and '562 is capable of being located in the vicinity of the end of the production line, which would allow the fluid chemical waste products to be neutralized immediately after they exit the production line. The placement of the apparatus near the production line does not appear to be critical to the use of the apparatus and would have been obvious to one having ordinary skill in the art because the closer the treatment apparatus is to the production source, the less the cost of transporting the chemical waste.

18. With regard to claim 29, '323 further discloses facilities (21) for temporarily storing and neutralizing the fluid chemical waste products after they exit the production line (Col. 3, line 66 – Col. 4, line 5).

19. With regard to claim 32, '323 further discloses the pyrolysis/reaction chamber has a metal wall, which is lined on the inside with refractory material (Col. 5, lines 55-60).

20. With regard to claims 33-34, '323 further discloses means controlling the temperature of the plasma stream, said means comprising: adjusting the value of the current flowing between the electrodes while the plasma torch is operating (Col. 7, lines 51-61).

21. With regard to claim 35, '323 further discloses the control system comprises components that are capable of performing one of more of the activities selected from

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the following group: acting as an input unit to said system (Col. 7, lines 55-58); storing information (inherent that if the controls run an automated program, the controls must be capable of storing that program); performing computations (Col. 14, lines 32-35).

22. With regard to claim 36, '323 further discloses the post-pyrolysis subsystem comprises a particle trap (68) to remove any solid particles from the mixture of product gases (Col. 13, lines 30-39).

23. With regard to claim 37, '323 further discloses a radiation cooler (26), as best understood, to rapidly reduce the temperature of the mixture of product gases (Col. 12, lines 13-15).

24. With regard to claim 38, '323 further discloses the post-pyrolysis subsystem comprises at least one spray tower (65, 68) comprising an entrance in its lower end and means for creating a downward spray of water droplets (Col. 12, lines 27-29), thereby dissolving at least one of the components of the mixture of product gases in water (Col. 12, lines 27-29).

25. With regard to claim 40, '323 further discloses the post-pyrolysis subsystem comprises monitoring equipment (at least 51, 52, 62, 76, 77) to measure the composition of the mixture of product gases at selected locations (Col. 11, lines 35-36, 43-44; Col. 14, lines 3-16).

26. With regard to claim 41, '323 discloses the claimed invention except for said system having a size and weight that allow said system to be transported from location to location and placed in position at an appropriate place in an existing production line. It would have been obvious for one skilled in the art at the time of invention to make the

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system portable, since it has been held that making an old device portable or movable without producing any new and unexpected results involves only routine skill in the art.

In re Lindberg, 93 USPQ 23 (CCPA 1952).

27. Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over '323 in view of '954 and '562 as applied to claim 27 above, and further in view of US 5,615,627 to Marr, Jr.

28. '323 as combined with '954 fails to disclose discloses the pyrolysis/reaction chamber is a double-walled chamber and a space between said walls through which water is caused to circulate, thereby cooling said pyrolysis/reaction chamber. '627 teaches the pyrolysis/reaction chamber is a double-walled chamber and a space between said walls through which water is caused to circulate, thereby cooling said pyrolysis/reaction chamber (Col. 3, line 63 – Col. 4, line 4). It would have been obvious for one skilled in the art at the time of invention to combine the chemical treatment apparatus of '323 as combined with '954 with the water jacket of '627 because such a combination would have produced the added benefit of a means to more precisely regulate the temperature within the reaction vessel and a way to prevent the reaction vessel from melting or over-pressurizing in the event the waste feed unexpectedly stops, a concern which '323 expresses at Col. 5, lines 35-36.

29. With regard to claim 31, '323 further discloses the walls of the chamber are made of stainless steel (Col. 5, lines 47-49).

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30. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over '323 in view of '954 and '562 as applied to claim 27 above, and further in view of US 4,644,877 to Barton et al.

31. '323 further discloses the post-pyrolysis subsystem comprises a storage vessel (809) for collecting the solution comprising at least one of the components of the mixture of product gases dissolved in water (Col. 12, lines 44-47; Col. 13, lines 50-52) and recycling said solution through the means for creating the downward spray of water droplets in the spray tower until the concentration of said component in said solution reaches a predetermined value (Col. 13, lines 50-58;.

32. '323 fails to disclose a pump for recycling said solution through the means for creating the downward spray of water droplets in the spray tower. '877 teaches a pump (104) for recycling said solution through the means (96) for creating the downward spray of water droplets in the spray tower (Col. 5, lines 37-40). It would have been obvious for one skilled in the art at the time of invention to combine the chemical treatment apparatus of '323 as combined with '954 with the recirculation pump of '877 because such a combination would have produced the added benefit of a means for supplying quench liquid under pressure to the spray nozzles.

33. Claims 42-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over '323 in view of '954.

34. '323 discloses a method for neutralizing fluid chemical waste products that result from a chemical production process and are collected from the production line, said method comprising: providing a system according to claim 27 (see paragraph 13

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above); activating the plasma torch to produce a plasma stream having a predetermined temperature (Col. 6, lines 60-62); activating the pre-pyrolysis subsystem to cause said waste to flow (Col. 4, lines 56-58); creating predetermined conditions of temperature and concentration of said atoms and ions such that predetermined chemical reactions take place (Col. 6, lines 62-65; Col. 4, lines 54-56); whereby, following the migration of said atoms or ions from the immediate region of said plasma stream, a gaseous mixture of recombination products is formed (Col. 8, lines 16-19); activating the post-pyrolysis means to neutralize at least some of said recombination products (Col. 13, lines 36-43); and collecting said recombination products (Col. 14, lines 57-59).

35. '323 fails to disclose ...through the atomizer thereby creating droplets which effectively contact said plasma stream whereupon the molecules of said waste dissociate into atoms or ions. '954 teaches the use of an atomizer nozzle (17) thereby creating droplets which effectively contact a flame cone (13) whereupon molecules of waste dissociate (Col. 2, lines 21-23; Fig. 1). It would have been obvious for one skilled in the art at the time of invention to combine the chemical treatment apparatus of '323 with the atomization nozzle orientation of '954 because such a combination would have produced the added benefit of a more efficient treatment process which ensures that the waste chemical will be subjected to the high temperature flame.

36. With regard to claim 43, '323 further discloses the fluid chemical waste product comprising a liquid (Col. 3, lines 1-3).

37. With regard to claim 44, the apparatus of '323 as combined with '954 is capable of being located in the vicinity of the end of the production line, which would allow the

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fluid chemical waste products to be neutralized immediately after they exit the production line. The placement of the apparatus near the production line does not appear to be critical to the use of the apparatus and would have been obvious to one having ordinary skill in the art because the closer the treatment apparatus is to the production source, the less the cost of transporting the chemical waste.

38. With regard to claim 45, '323 further discloses the fluid chemical waste products being temporarily stored after they exit the production line (Col. 3, lines 20-43; fluid waste products are temporarily stored in the charging hopper 11 or feed hopper 12 before moving into the pyrolysis chamber) and then are neutralized (Col. 3, line 66 – Col. 4, line 5).

39. With regard to claims 46-47, '323 discloses the treatment of organic and inorganic liquid wastes (Col. 2, line 56 – Col. 3, line 12). It would have been obvious to treat chemical waste products containing bromine or bromine products or chemical waste products resulting from the production of tetrabromobisphenol A (TBBA) as they are organic or inorganic wastes that are capable of destruction through the application of energy and treatment using the apparatus of '323 would render the waste products into non-toxic slag and a useful gas from which energy can be derived.

40. With regard to claim 48, '323 further discloses means controlling the temperature of the plasma stream, said means comprising: adjusting the value of the current flowing between the electrodes while the plasma torch is operating (Col. 7, lines 51-61).

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41. With regard to claim 49, '323 further discloses the energy requirement of the plasma torch/es is determined from the disassociation energies of the molecules of which the waste is comprised (Col. 7, lines 51-55, 62-64).

42. With regard to claim 50, '323 further discloses the composition of gases that comprise the mixture of product gases is calculated using principles of kinetic equilibrium (as best understood by examiner) and the results of the calculation are used to design the post-pyrolysis subsystem (Col. 14, lines 3-19, 44-47). Furthermore, it is to be expected the one of ordinary skill in the art would design a post-pyrolysis subsystem to accommodate the expected temperatures and composition of gases generated in such a pyrolysis apparatus.

Conclusion

43. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David J. Laux whose telephone number is (571) 270-7619. The examiner can normally be reached on M-F 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Rinehart can be reached on (571) 272-4881. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. J. L./
Examiner, Art Unit 3743

June 18, 2009

/Kenneth B Rinehart/
Supervisory Patent Examiner, Art Unit 3743